

# Utah Department of Transportation Traffic Management Division

October 2016  
Monthly Report



2060 South 2760 West Salt Lake City, Utah 84104 801-887-3710 [www.udottraffic.utah.gov](http://www.udottraffic.utah.gov)



## Mission of the Traffic Management Division

- To Support UDOT and the Department of Public Safety to Achieve Zero Fatalities.
- To Help Provide Reliable and Efficient Travel Throughout Utah.
- To Provide Useful and Timely Real-time Traffic Information.
- To Work Together with Other Government Agencies to Serve the Public.
- To Provide Excellent Customer Service.

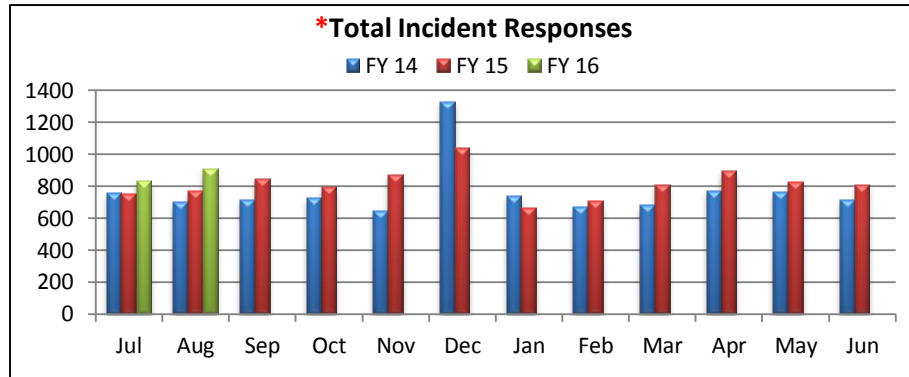
## Field Devices Summary

Freeway PTZ Cameras	396	Freeway VMS	100
Arterial PTZ Cameras	488	Surface Street VMS	57
RWIS & Contracted Weather Cameras	218	Portable TOC VMS	7
Viewable Detection Cameras	41	Legacy Trucks Prohibited VMS	21
Total Cameras	1,143	Variable Speed Limit VMS	15
HAR (27 permanent/5 portable)	32	Chain-Up/Avalanche Warning Signs	24
RWIS	100	Total VMS	224
Ramp Meters	69	TMS	579
Express Lane Plazas	73	Traffic Signals	1,764

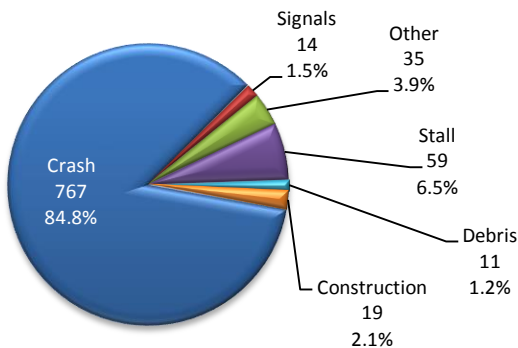
## Operations Summary

VMS Messages Displayed	84,041	IMT Assists	1,936
Signal Timing Work Orders	27	Website Visitor Sessions	249,509
Signal Maintenance Work Orders	178	511 Calls	11,572
All New Work Orders	476	Weather Desk Calls	189
Incident Responses by the TOC	905	Ask CommuterLink Questions	53
Incident Duration Average Minutes	58	UDOT Traffic Followers and Re-tweets	738,037

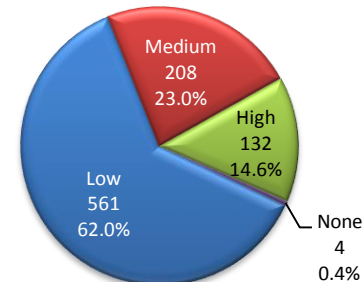
An incident response occurs each time an incident is recorded in the ATMS system. These can be of several types, including crash, construction, debris, stall, congestion, or other. Crashes are separated into three subcategories: property damage, personal injury, and fatal. Each time an incident is created, information is sent to the 511 system, the website, and to the public through email alerts. An incident remains active until it has been completely cleared from the roadway.



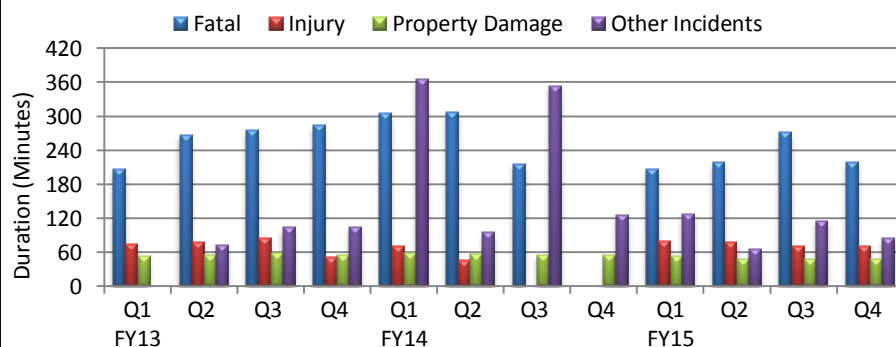
**\*Incidents By Type for August 2015**



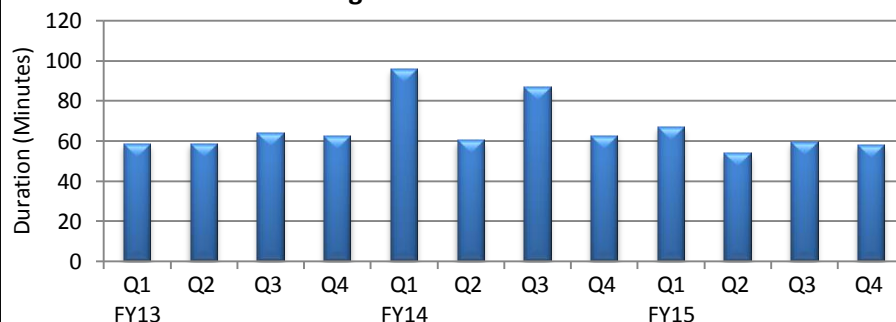
**\*Incidents by Severity for August 2015**



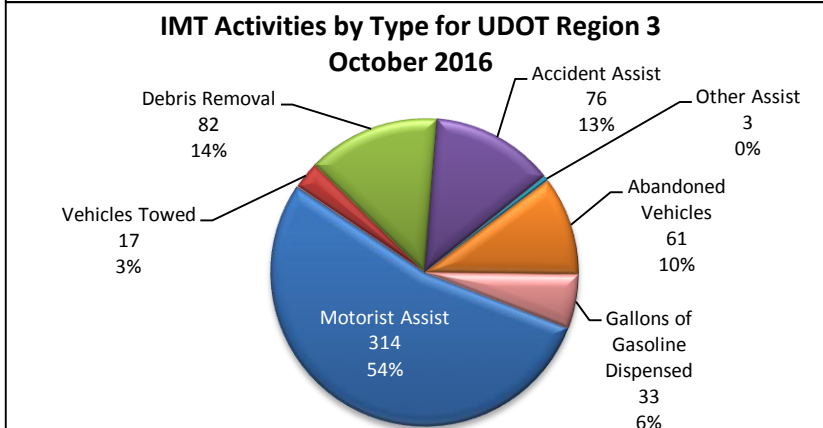
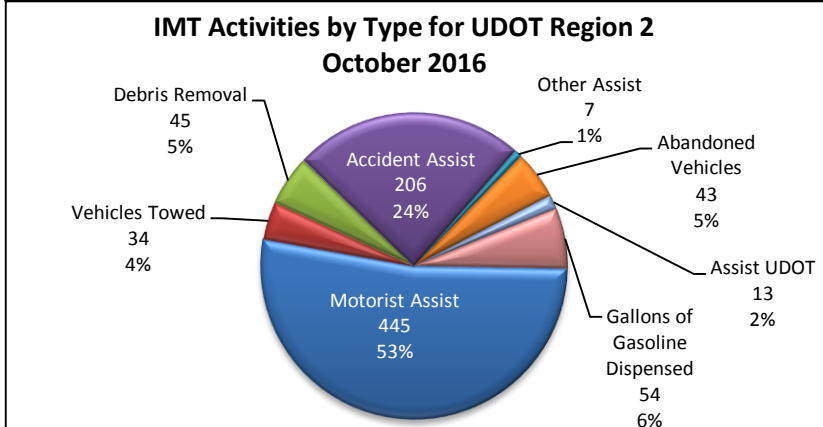
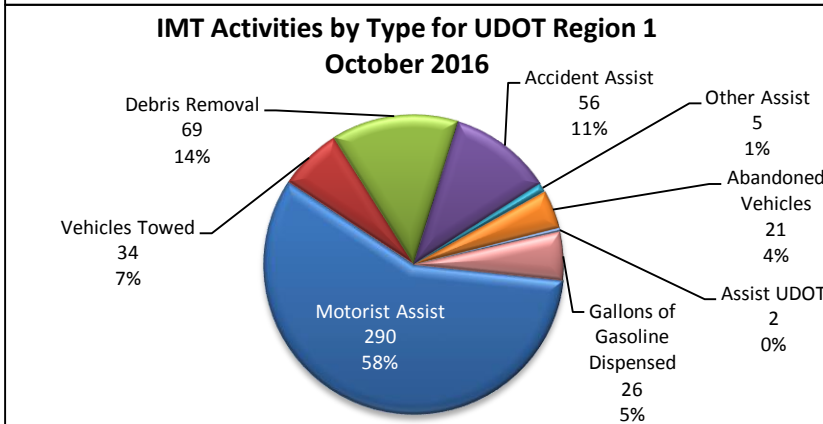
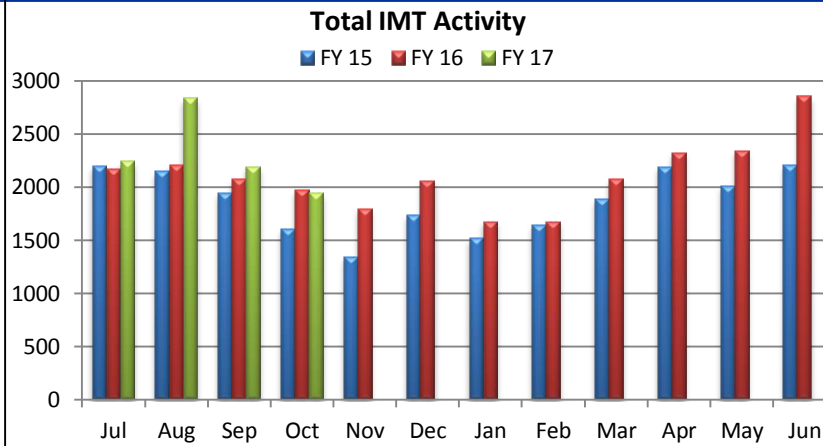
**\*Average Crash Duration**



**\*Average Duration of All Incidents**



## Incident Management Team (IMT) Activities



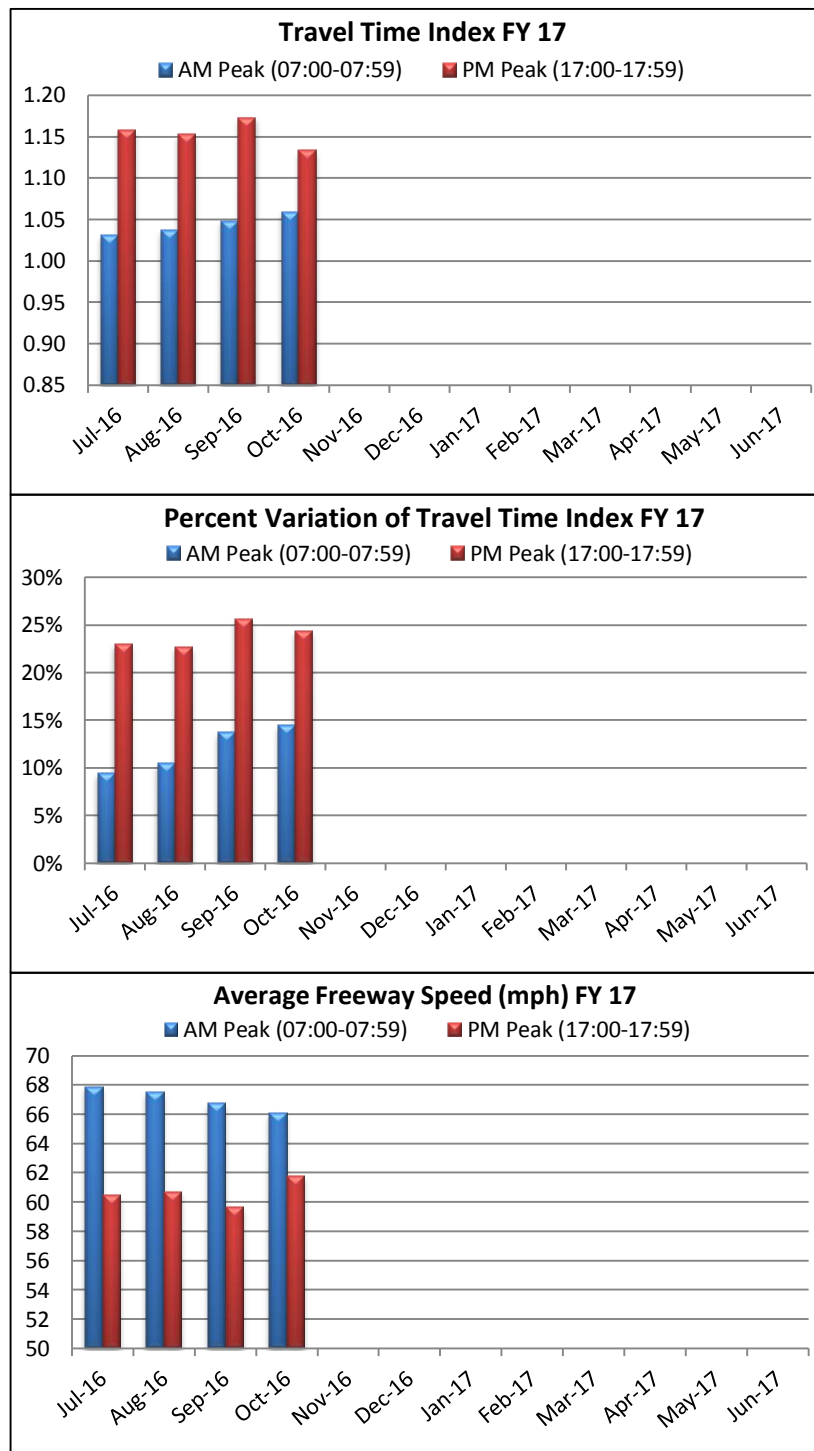
## Freeway Traffic Level of Service

Freeway flow measures are taken from the Traffic Monitoring Stations (TMS) located throughout the Wasatch Front. As more TMS sites are installed throughout the state, they will be included in these performance measures.

**Travel Time Index:** This measure of mobility is based on freeway speeds and is weighted by segment lengths and by the traffic volume. A value of 1.0 represents free-flow speeds. A value of 1.12 indicates that the average vehicle trip takes 12% longer than if that were the only vehicle on the freeway.

**Percent Variation of Travel Time Index:** The percent variation in the Travel Time Index is a measure of how much the Travel Time Index changes from day-to-day.

**Average Freeway Speed:** The freeway speed is weighted by volume.



## Freeway Traffic Level of Service

### Peak Travel Time Index by Segment for October 2016

(+) Direction (NB, EB, Clockwise)

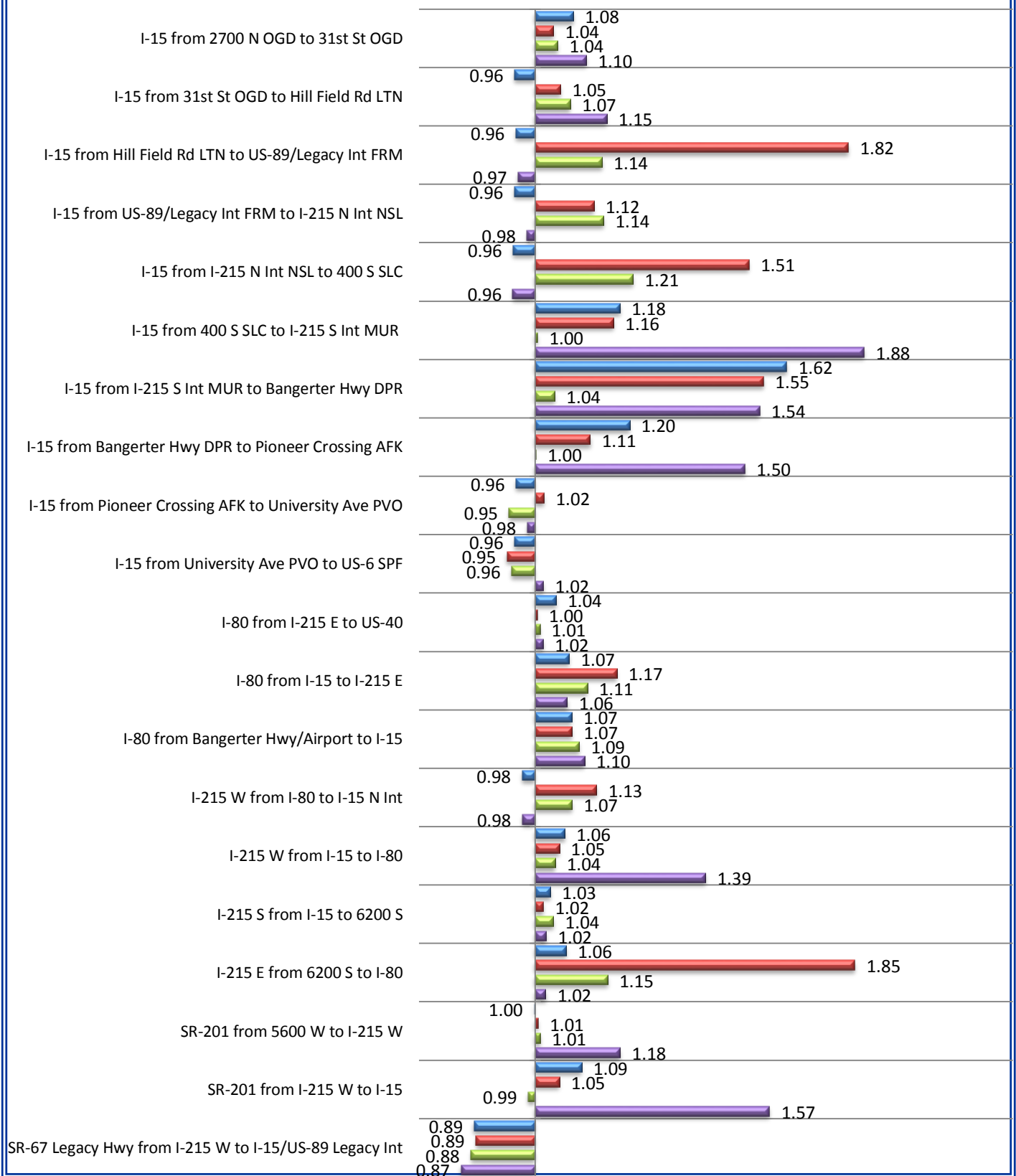
(-) Direction (SB, WB, Counter Clockwise)

■ AM Peak (07:00-07:59)

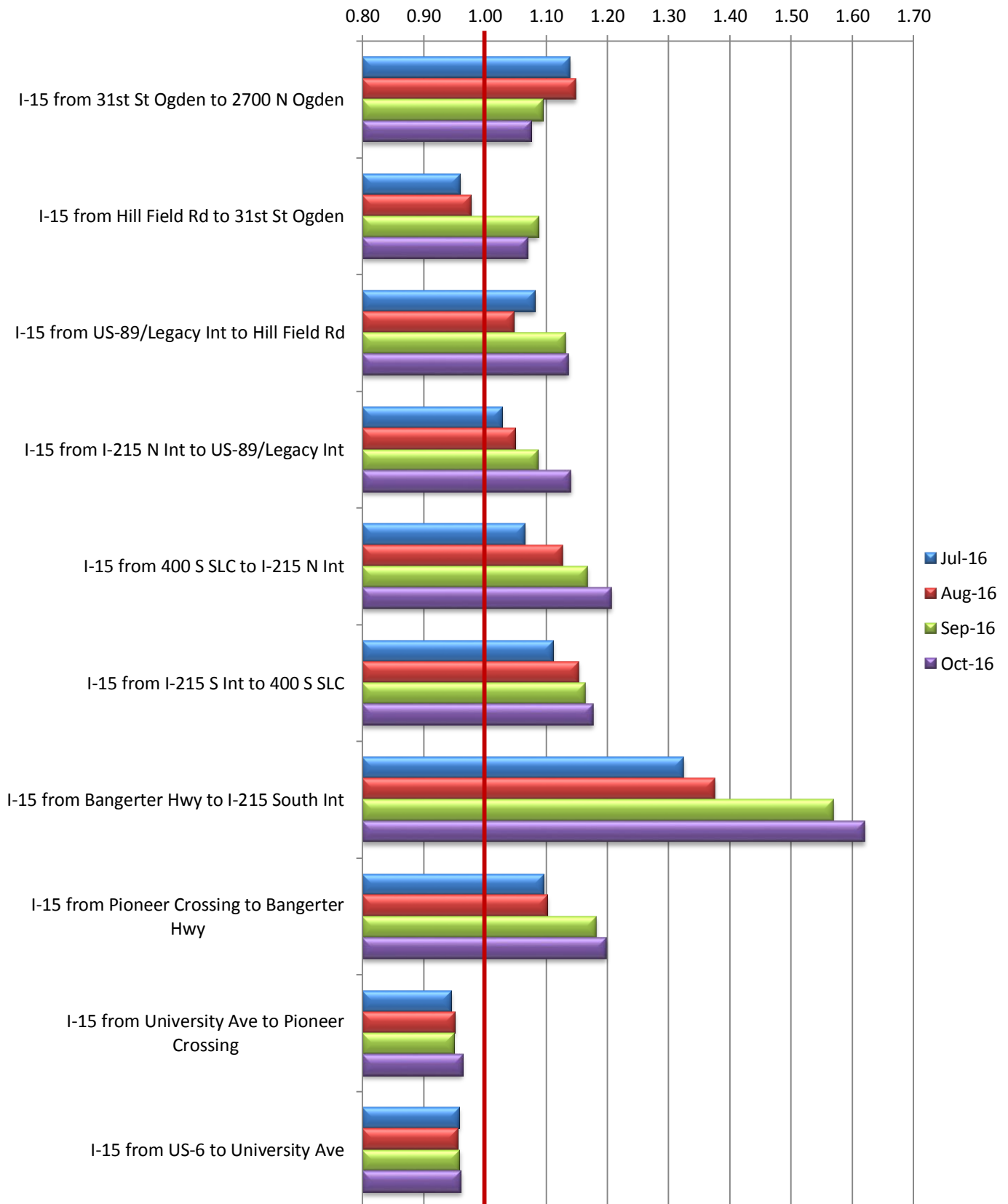
■ PM Peak (17:00-17:59)

■ AM Peak (07:00-07:59)

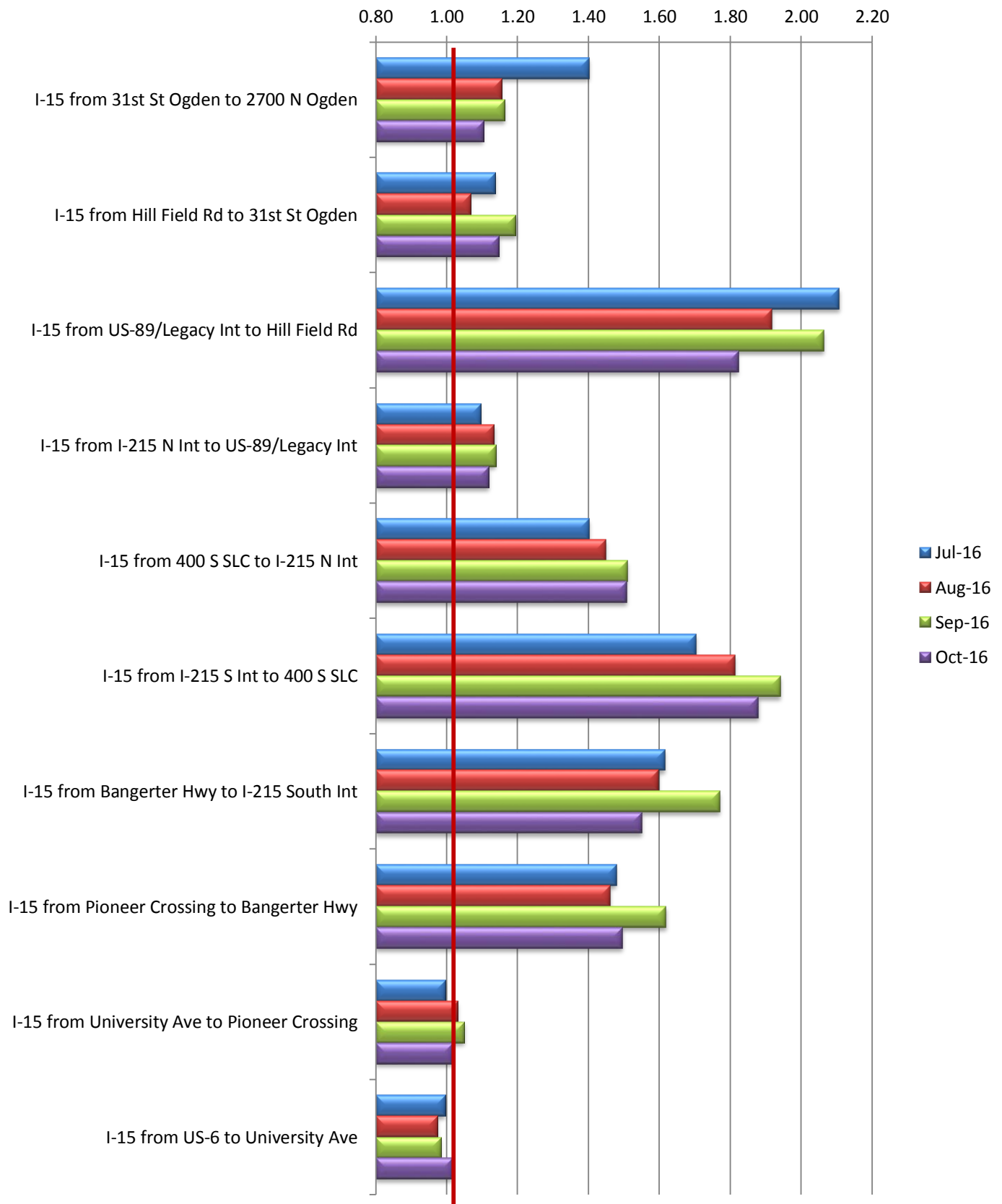
■ PM Peak (17:00-17:59)



### AM Peak Travel Time Index for I-15 FY 17

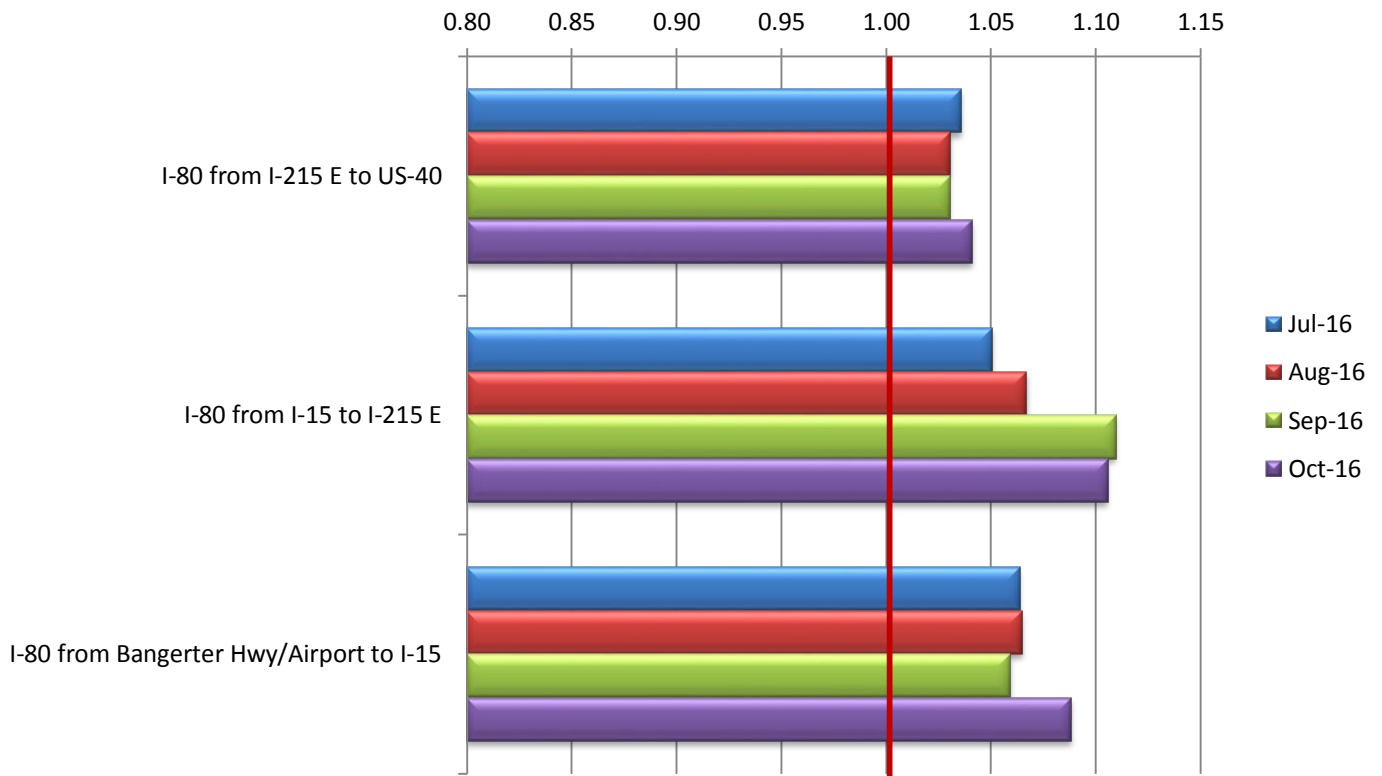


### PM Peak Travel Time Index for I-15 FY 17

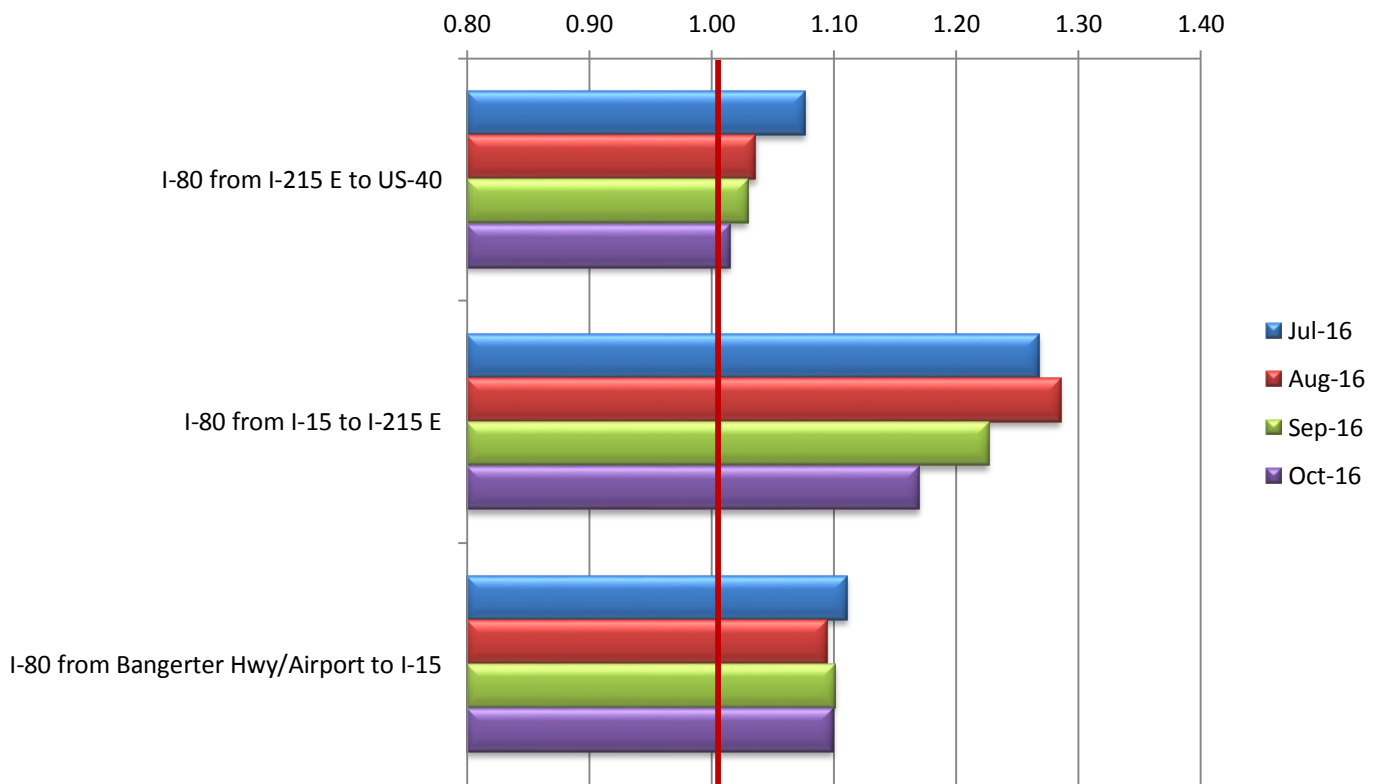




## AM Peak Travel Time Index for I-80 FY 17

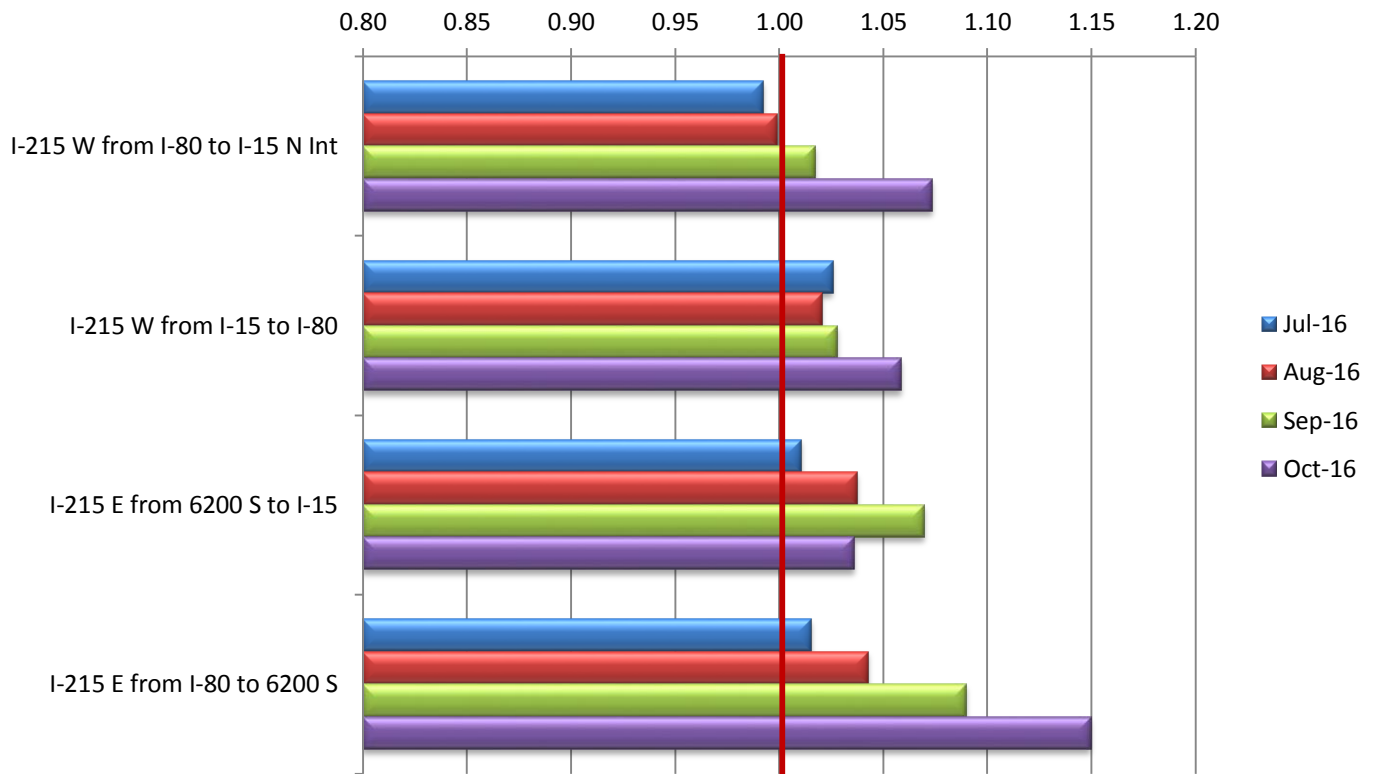


## PM Peak Travel Time Index for I-80 FY 17

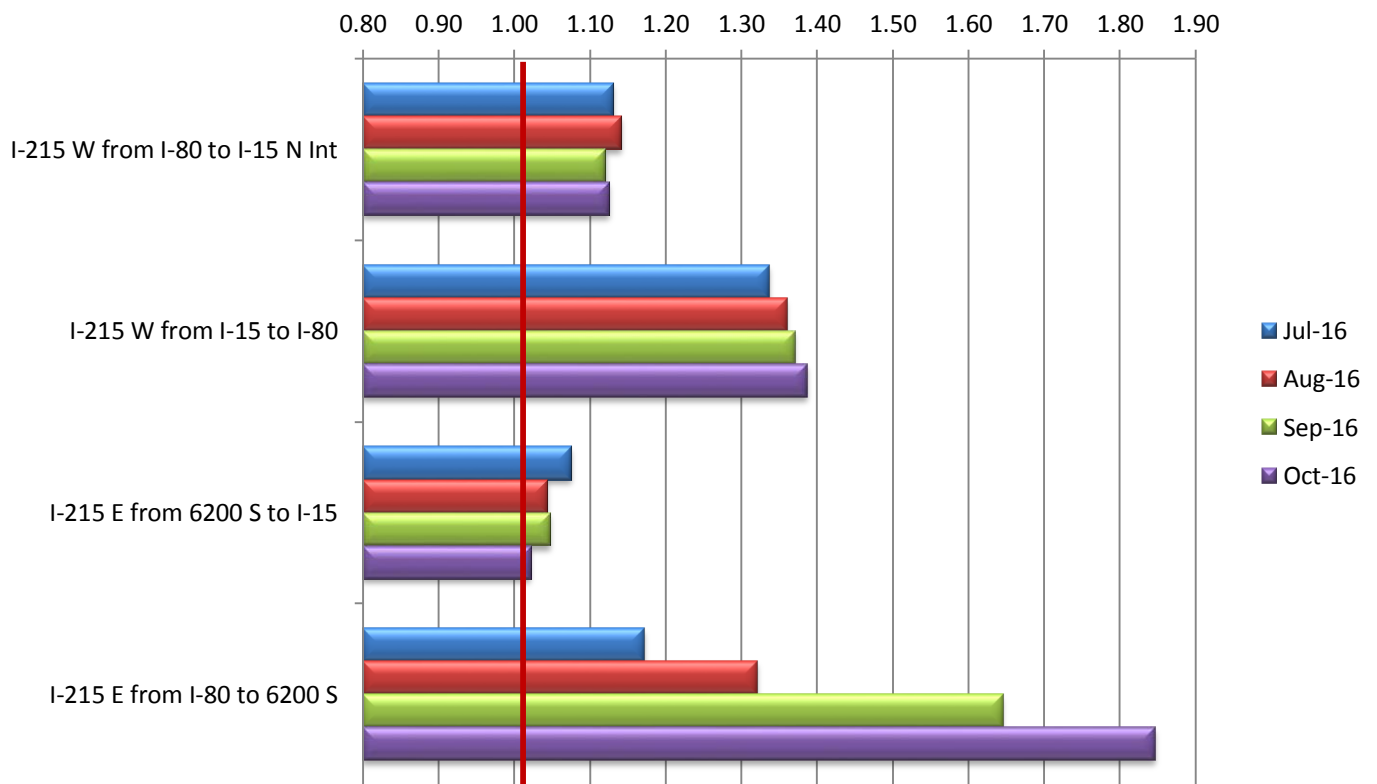




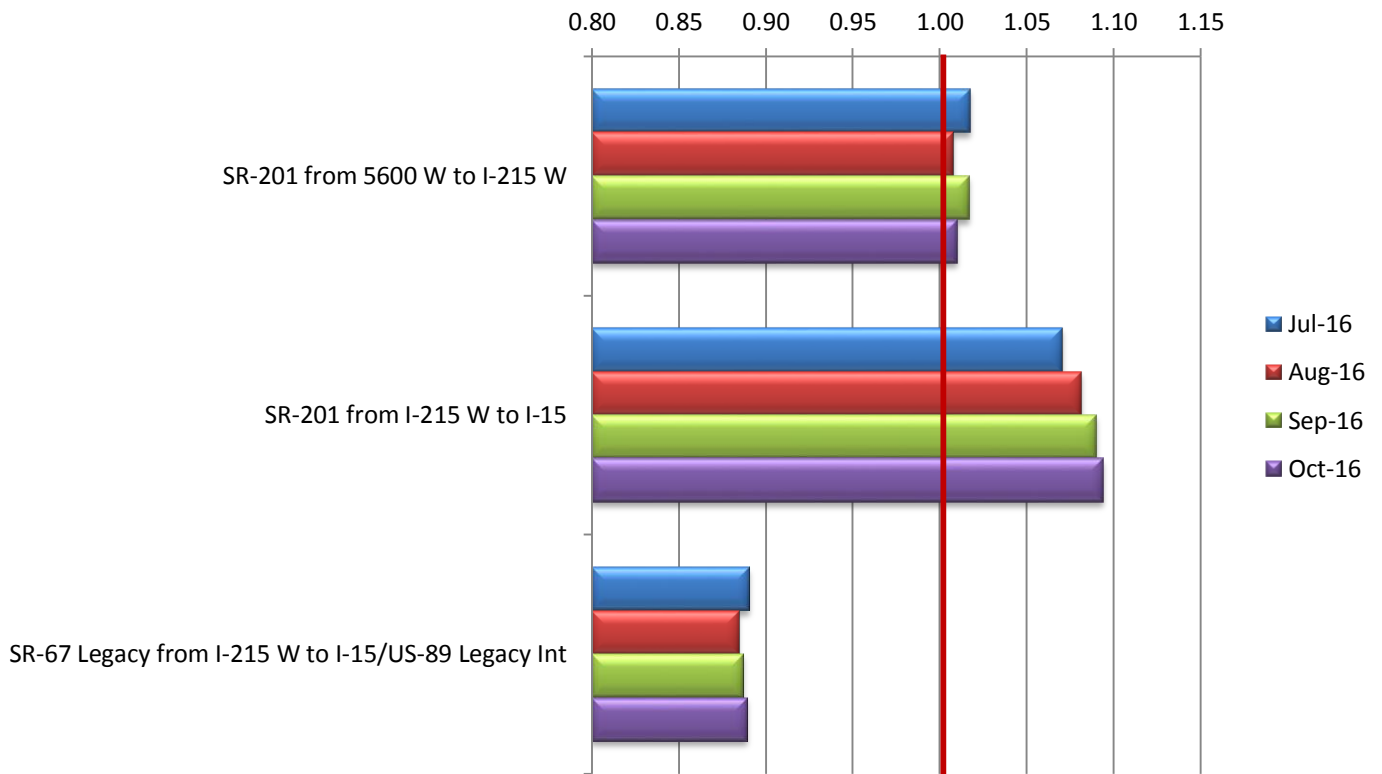
## AM Peak Travel Time Index for I-215 FY 17



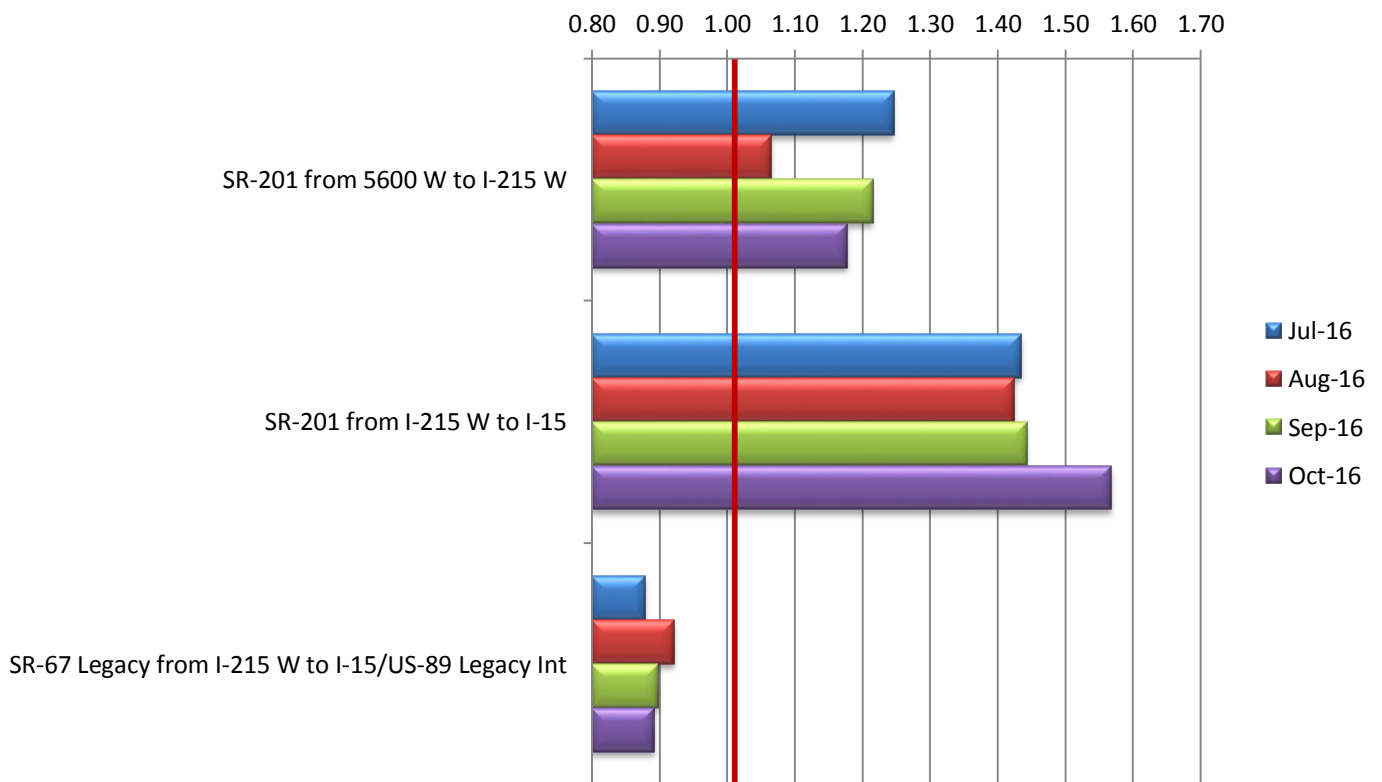
## PM Peak Travel Time Index for I-215 FY 17



### AM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 17

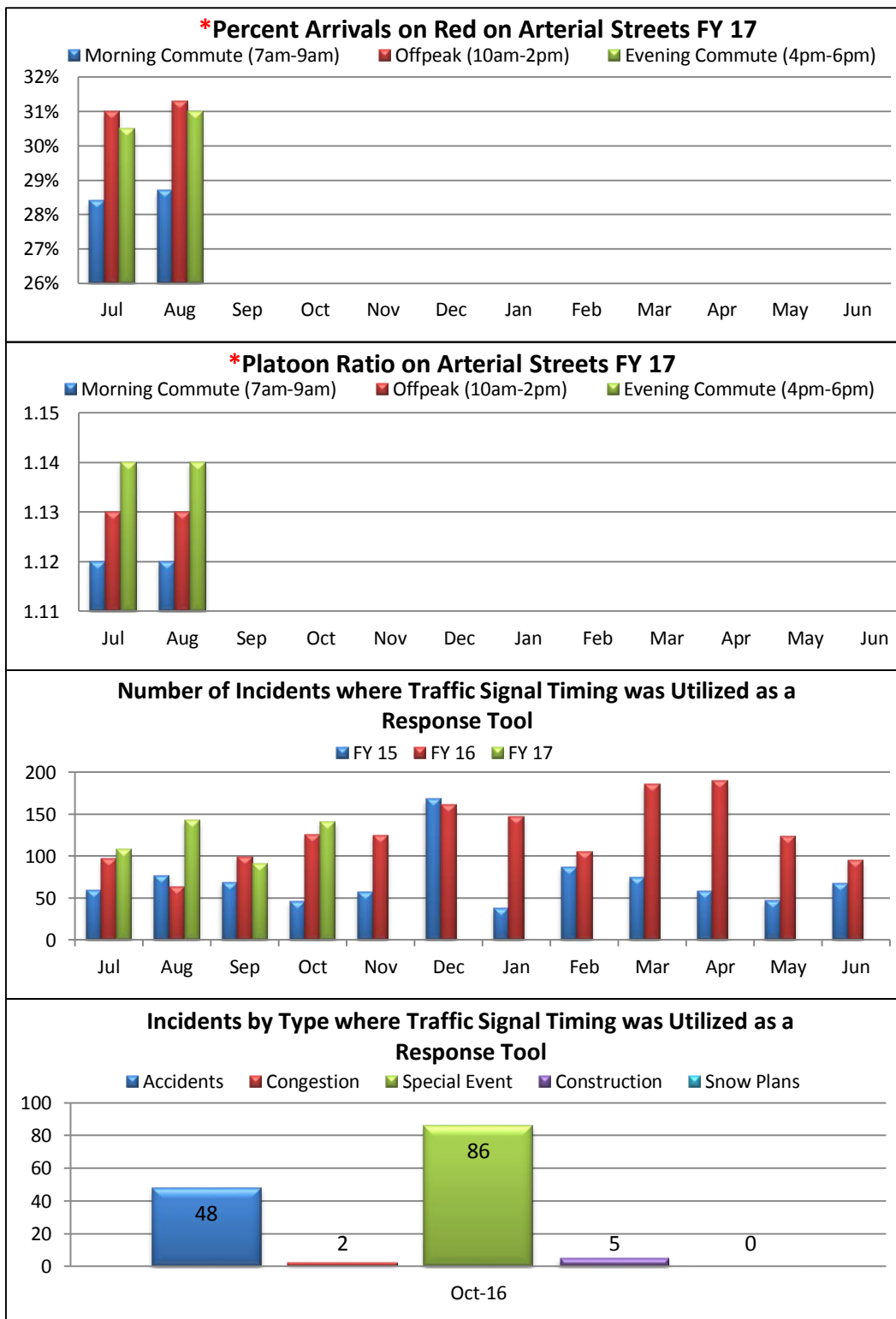


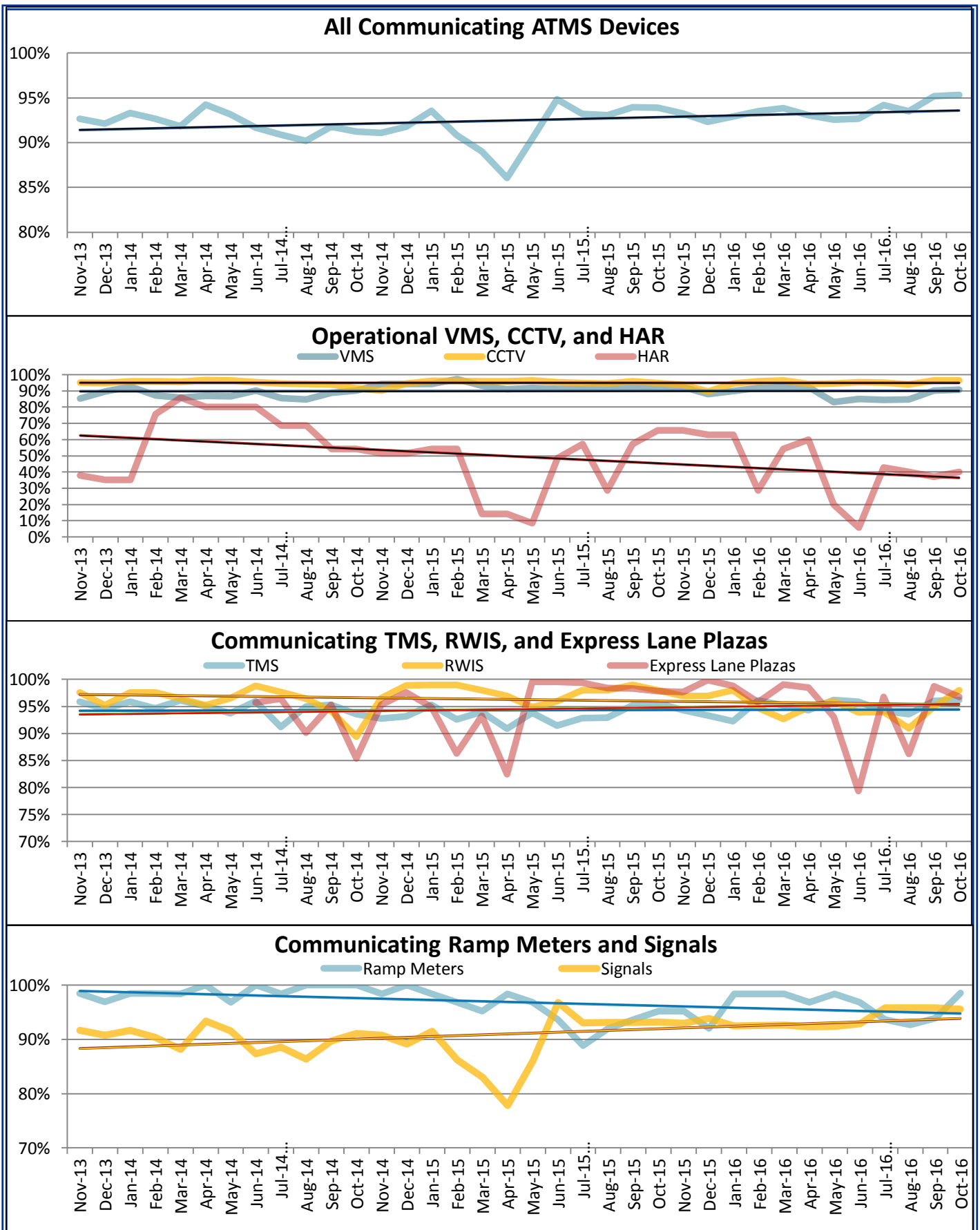
### PM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 17

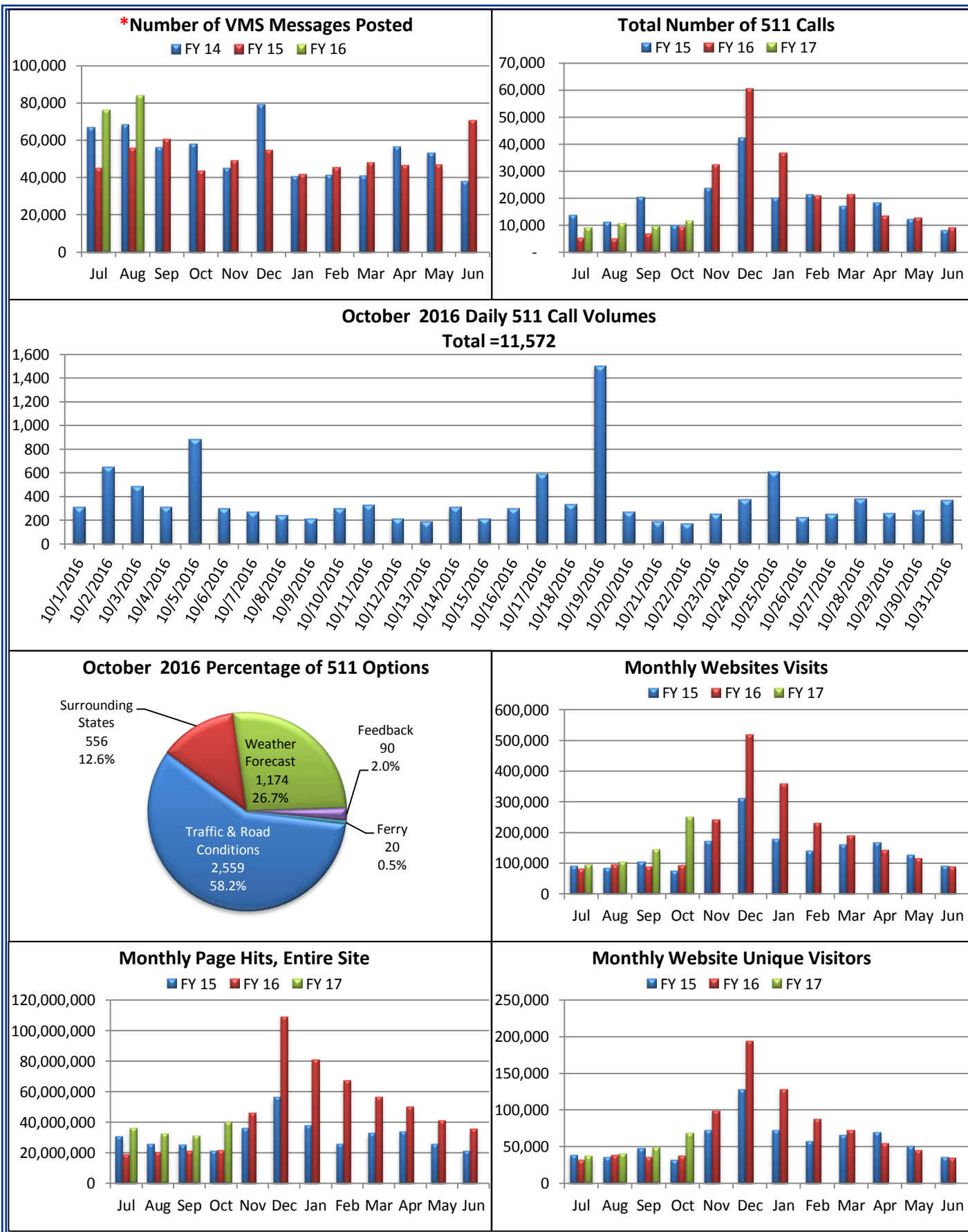


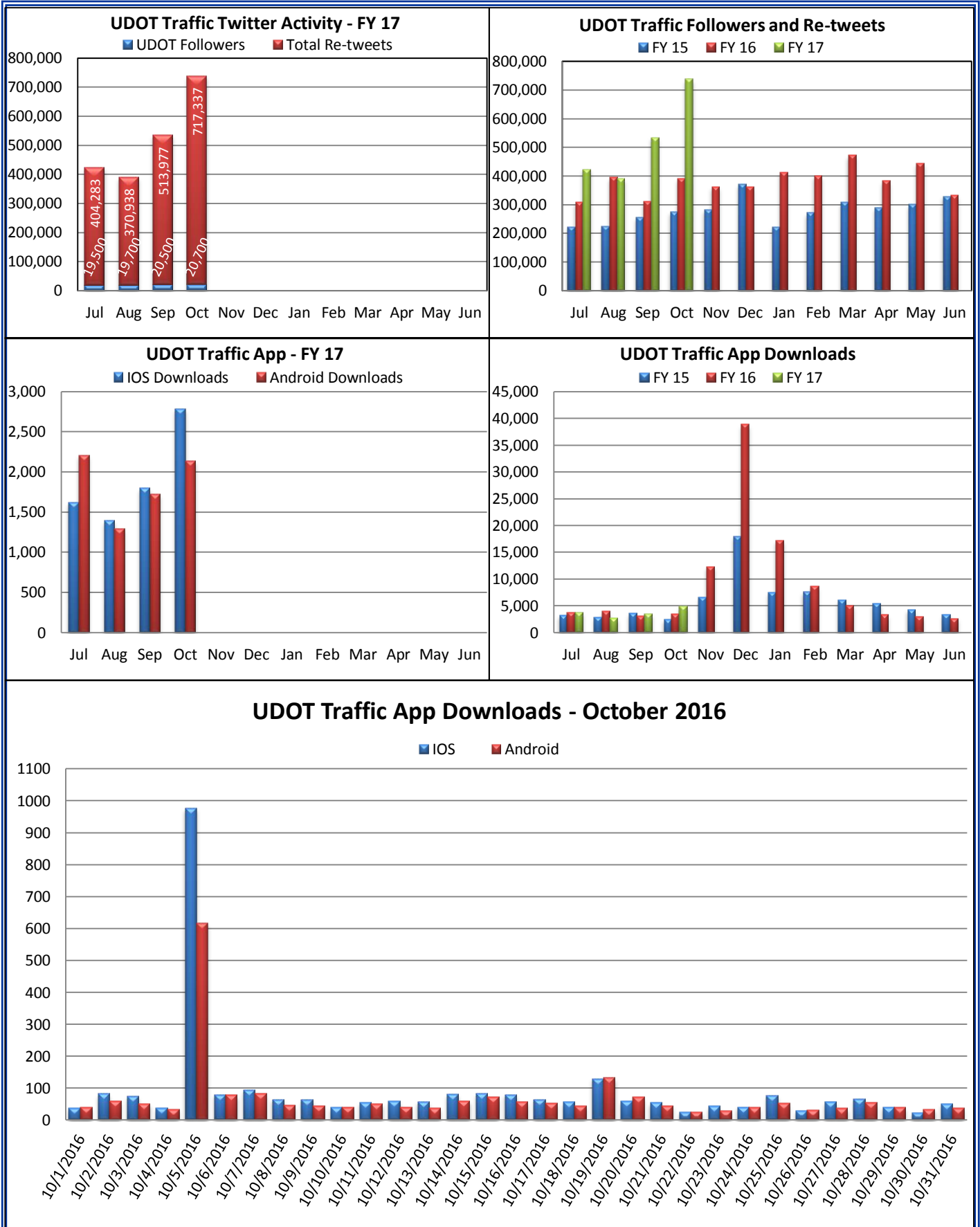
## Arterial Traffic Level of Service \* No data available for Sept 2016

The percent arrival on red along the arterial statistics are generated automatically through the automated traffic signal performance measures, which show real-time and historical functionality at signalized intersections. The system automatically time-stamps when each vehicle arrives at the intersection and then compares the detection time-stamp if the phase was green or red. The percent arrival on red data is averaged over the 24 hours of the day and days in the month. . The lower charts shows the number of incidents where traffic signal timing was modified in order to help traffic flow around closed lanes, or to help relieve excessive congestion.

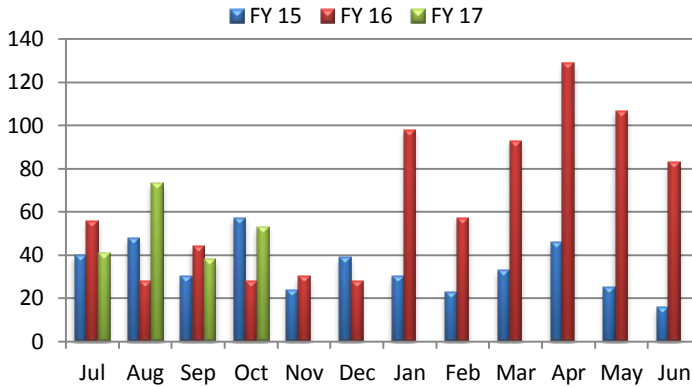




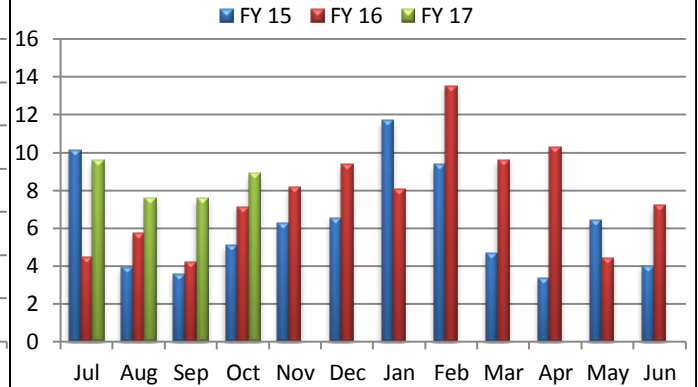




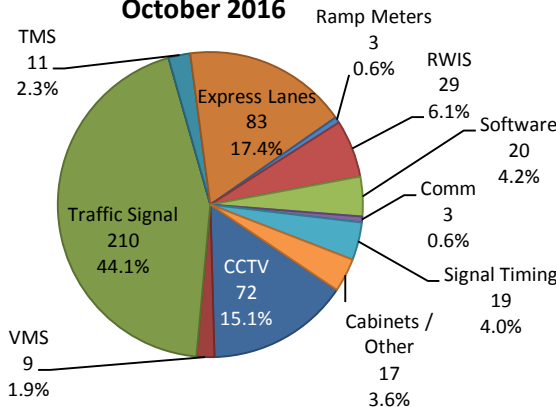
## Number of "Ask UDOT Traffic" Questions



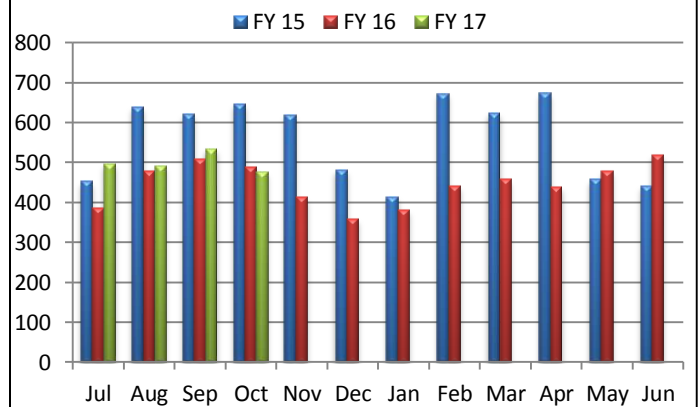
## Overall Average Work Order Turnaround Days



## New Work Orders by Device Type October 2016

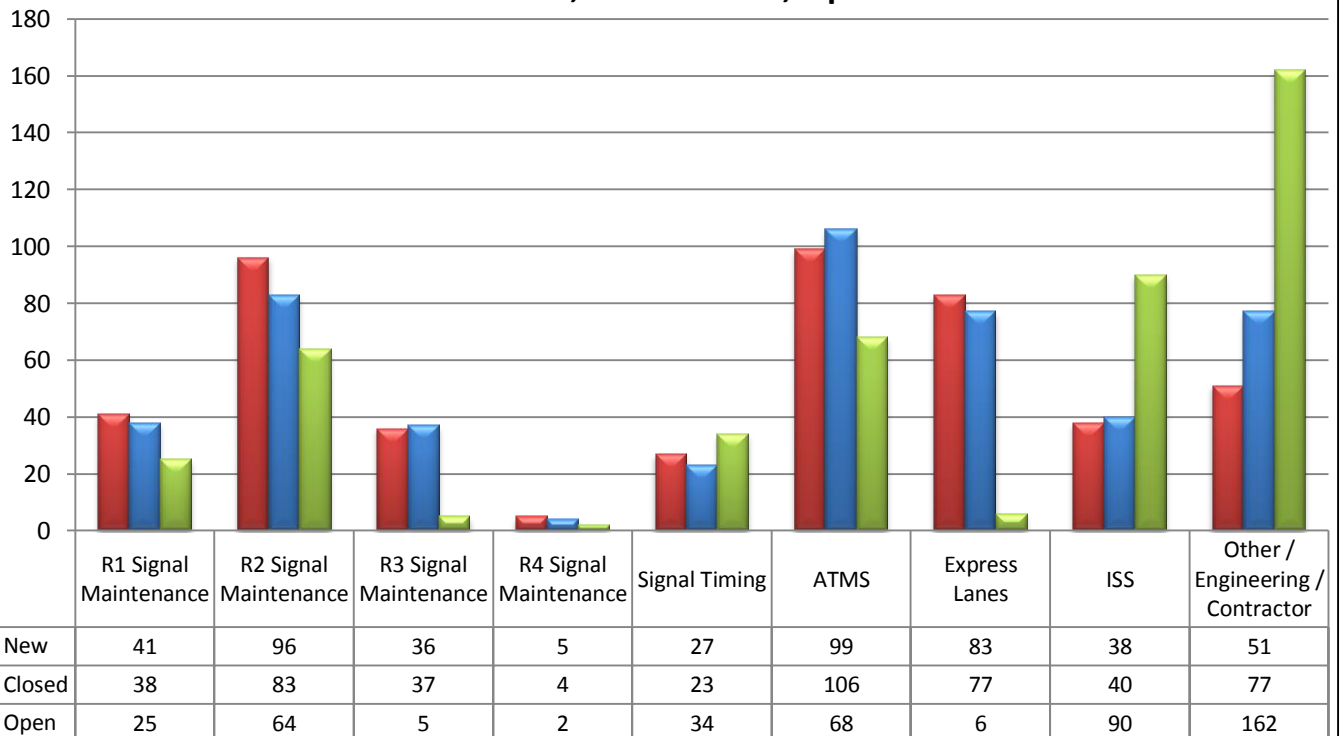


## Number of New Work Orders



## Work Order Statistics by Group - October 2016

Total New = 476, Closed = 485, Open = 456







### CONTROL ROOM

The Control Room dealt with one of the highest impact incidents in some time on October 5th. A tanker carrying ammonium nitrate rolled one of two trailers on I-15 at the I-215 S Junction. I-15 was fully closed and I-215 was closed on the south belt in both directions for a considerable amount of time. The Control Room helped coordinate resources, contact partners, monitor conditions, and update information for this large scale operation. The incident was active for nearly ten hours. Control room operators performed admirably during this event, as did all UDOT staff.

The Control Room "Wiki" site is now fully operational and contains a digital phonebook, policies and procedures, instructional documents, and more. The link is: <http://srwtcrepo/twiki/bin/view/ControlRoom/WebHome>

### TRAVELER INFORMATION

The Traveler Information Group represented UDOT at a regional operations forum with DOT representatives from California, Nevada, New Mexico, Arizona, and Colorado in attendance. Staffed the U of U command post for special events, and hosted a TOC tour for a local engineering firm. UDOT was also represented at the recent Southern Utah Broadcaster's meeting in St George.





### WEATHER INFORMATION GROUP

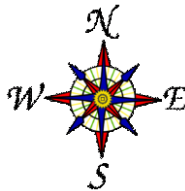
The Weather Group had 151 overall UDOT Weather interactions, 50 outgoing Weather Alerts, four National Weather Service collaborations, and four Road Weather Alerts.

#### Climatology

Temperatures across the entire state were above normal for the month of October and except for far northern Utah, which was also drier than normal. It was the fourth warmest October at Salt Lake International Airport.

For the current monthly climate outlook, please visit: <http://www.nw-weather.net/UDOTMonthlyOutlook.pdf>

For the current seasonal outlook, please visit: <http://www.nw-weather.net/UDOTSeasonalOutlook.pdf>



#### Weather Operations

The Group chaired the Aurora Board Meeting in Buffalo, NY in the beginning of October and was able to tour the NITTEC TOC while there, participated in the biannual FHWA Road Weather Regional Roundup, and met with UTA managers to discuss road weather operations related to Integrated Corridor Management. The Group also participated in a pre-winter coordination meeting with the Salt Lake City National Weather Service office, and attended the National Weather Service's Fall Seminar.

Findings of a study on two storms during January 2013 conducted jointly between UDOT, the National Weather Service, Weather.net, and the University of Utah were published in the *American Meteorological Society Journal 'Weather, Climate, and Society'* (<http://dx.doi.org/10.1175/WCAS-D-16-0017.1>).

The group completed fall preventative maintenance on UDOT's RWIS sites and moved the portable tripod mounted RWIS from US-89 near Dry Lake in Sardine Canyon to Bear Lake Summit near the Logan Summit shed.

The Snow and Ice Performance Measure's Storm Management webpage was rolled out for interested UDOT staff to analyze storm and road conditions across the state in real time. This is available at: <http://udottraffic.utah.gov/forecastview/stormmanagement.aspx>. (using UDOT credentials to login).

### TRAFFIC OPERATIONS AND REPORTING

Involvement with:

- ❖ Managed Motorways.
- ❖ Big data Data procurement.
- ❖ I-215 lanes split discussion.
- ❖ Governor's performance metric.
- ❖ 10600 South interchange.
- ❖ Vineyard sequencing study.
- ❖ TSM&O conference in Denver.
- ❖ Project user costs/limitations of operations.
- ❖ Congestion Reporting.
- ❖ Life of State Study.
- ❖ AAC performance metrics.
- ❖ Redwood Road I-215 South interchange ramp metering.
- ❖ Redwood Road I-215 North interchange DDI.
- ❖ VISSIM Users Group Meeting.
- ❖ Cottonwood Canyon operations evaluation.
- ❖ Mountain Accord.
- ❖ PG Blvd development impacts.
- ❖ SR-77 ramp design.
- ❖ Region 3 capacity project prioritization.
- ❖ I-80/Foothill Blvd study.
- ❖ Lehi Technology Corridor.
- ❖ DDI presentation to Australia representatives.
- ❖ Provo/Orem BRT.
- ❖ SR-9/Zion Park Coordination.
- ❖ I-15 operations in Region 3.
- ❖ SR-68 roadway widening in Saratoga Springs.



### ITS ASSET MANAGEMENT

The ITS Asset Management Team integrated three new ramp meters, two TMS, three new freeway and six new surface street CCTV, three new RWIS CCTV, and six new traffic signals.

The team also held a kick-off meeting to develop a plan to transition from the currently used analog cameras to an IP based camera and began preparing a procurement contract for high mast highway lighting luminaires.

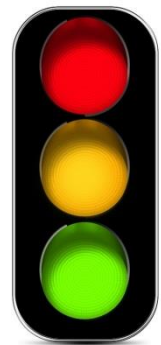
### TRAFFIC SIGNAL OPERATIONS

#### Region 2

- ❖ The left turn capacity was doubled at Ft. Union Blvd & 900 E in Midvale by reconstructing the intersection with double left turn lanes on three legs.
- ❖ The median pole was removed and relocated at 11400 South and I-15 to improve visibility and prevent further knockdowns.
- ❖ Wasatch Blvd, between Big and Little Cottonwood Canyons was re-paved and radar detection was added.
- ❖ Participated in traffic management for a tanker roll over on I-15.
- ❖ Prepared and implemented signal timing plans for the scheduled full closure of Bangerter Hwy so the water aqueduct could be replaced under the road.

#### Region 3

- ❖ A new traffic signal at SR-198 (Canyon Rd.) & 2600 E. in Spanish Fork was turned on .
- ❖ A left turn phasing and radar detection to 300 S. & 200 W. in Provo was added.
- ❖ Modified the traffic signals at University Pkwy. and 2230 N. for BRT construction.
- ❖ Installed SB dual left turns and protected-only phasing at SR-92 & Digital Dr. in Lehi.
- ❖ Added a NB left turn phase at University Ave. & 1860 S. in Provo.
- ❖ Opened the fourth leg and modified the traffic signal at I-15 & Lakeview Pkwy. in Provo.
- ❖ School crosswalk switches at two signals were installed.
- ❖ A broken junction box and 7-conductor wire at 3700 N. & University Ave. in Provo was replaced.
- ❖ A broken junction box at State & 500 E. in American Fork was repaired.
- ❖ Installed radar detection WB at the I-15 & Main St. DDI in American Fork and SB at Pioneer Crossing & 2300 W. in Lehi to replace bad loops.
- ❖ Replaced the street name signs at Crossroads Blvd. & Redwood Rd. in Saratoga Springs after the street names were changed.
- ❖ Replaced pedestrian pole and push buttons that were knocked down at 1575 N. & Redwood Rd. in Saratoga Springs.
- ❖ Traffic signal plans were adjusted to ease congestion for BYU football games.



#### Region 4

- ❖ Installed 51 new LED cobra heads in Vermillion, Salina, Scipio, Joseph, and along I-70.
- ❖ Replaced fuses with circuit breakers at 12 locations along I-70 & in Joseph.
- ❖ Installed four new LED sign lights at the Center St. interchange in Cedar City.
- ❖ Installed an advance flashing warning system for the rail road crossing in Lynndyl.
- ❖ Repaired communication to two CCTV cameras in Richfield.
- ❖ Replaced a lighting pole that was knocked down in a crash on I-15.

### ATMS MAINTENANCE

#### Field

The Team inspected a power pedestal for a new surface street sign on SR-248 @Wyatt Earp Way (Park City) in preparation for the final inspection, LFOT and activation of the sign. Due to a failed inspection, a revisit will be required. The Team performed successful LFOTs for four cameras at SR-92 @ 6400 W, Sr-92 @ South Jordan Pkwy, SR-92 @ 200 S Pleasant Grove, and 900 E. @ Fort Union Boulevard (Midvale).

Communication problems at the channel 1911 location (Logan) suffering interference on the existing radio frequency that was a public band 5.8. The Team replaced all six radios with radios having a frequency of 3.5. The six radios used for the replacement were salvaged when the channel was converted to fiber. The radios had to be conditioned and loaded with new firmware, thus saving the department the cost of new radios. Similar circumstances applied to communication problems and resolutions for channels 1128 and 1140 at Clearfield and Roy.

The Team worked with Paul Jencks to clear out duties for troubleshooting and repair of LiveView camera problems. Chris Smith has updated all of our SixNet modems and resolved the locking up problem affecting the Hanksville VMS sign. The sign was fixed with the update and the has been online at 100%. This resolution was communicated to the RWIS group and they will incorporate this fix to their SixNet modems.

80 total work orders close for the month.

#### Lab

Inclusive of Digi Terminal Servers, Traffic Signal Controllers, 2070 Controllers, Wireless Radio, Wavetronix Radar and CCTVs, a total of 44 devices were tested/repared. Two traffic signal cabinets were tested and burned in for Region 2's spare cabinets. The Team released one traffic signal cabinet to B. Jackson Construction for SR-111 (Baccus Hwy) @ 6200S project and received two Daktronics Type 1 signs for the I-215 project.

The team performed two ramp metering LFOTs for the Point Project. A Meter base inspection was performed on SR-248 and assistance was given to the Express Lanes Team with installing two sets of lane controllers, one relay installation, a moving lane closure, one laser upgrade, and six PMs.

There are 21 open work orders; 15 of which are on hold for loop replacements. The Electronics Lab closed 14 work orders during the month of October.



### Express Lanes Team

The Express Lane Team closed and verified operation of 643 work orders, the majority of which were due to Point Project fiber splicing. The Team performed the scheduled weekly system drive and repaired and programmed 25 lane controllers, replaced ten lane controllers, one reader, one UPS, one switch and one laser. Seventeen lane controllers, three lasers, two readers and eight VTMS were re-booted. The group recalibrated ten pucks and performed PM's on 15 Cabinets. Six full lane, and 32 short PMs were performed. The group also installed one Ethernet Relay. The Lab group assisted when extra manpower was needed and Express Lanes assisted The Lab when they needed extra man power also.



### Region 1

- ❖ **Statewide Signal Interconnect:** PS&E has taken place advertisement is eminent.
- ❖ **US-60 and 2700E:** In design.
- ❖ **SR-232 Hillfield Rd. Interchange:** Under construction.
- ❖ **30<sup>th</sup> Street and Harrison:** Under construction.
- ❖ **650 N. I-15 Clearfield:** Under construction, integration in process.
- ❖ **I-15; SR-30 to the Idaho State line:** This project may be part of a partnership with a telecom.
- ❖ **Layton Interchange:** This project is in design.
- ❖ **32<sup>nd</sup> Street and US-89:** Integration in process.
- ❖ **Antelope and Main:** Integration in process.
- ❖ **Sardine Canyon US-89 from Brigham to Wellsville:** In design.
- ❖ **US-89; Antelope Drive Extension:** Construction complete, integration in process.

### Region 2

- ❖ **I-15 Point Project:** The Design-Build Team worked long hours to meet substantial completion. ATMS elements were completed, inspected by the UDOT TMD, and a punch list was generated for final disposition. The Electronic Toll System was completed as part of the Design Build. Once completed and handed over to the State, we had to certify the performance of the toll system. This process is the commissioning of the system. Our contract consultant, Transcore, must now perform the commissioning of the Toll System to ensure proper operation. This work will take place over the next couple months.
- ❖ **Salt Lake Valley Traffic Signal Interconnect:** We began working with Salt Lake County to commence a new phase of signal interconnect work. This next phase will focus on county-wide signals, including those contracted to the county on local city streets. Our team is investigating which signals can be connected on existing fiber nearby or by third party telecommunication owners, installing new fiber in open conduit, or installing new conduit. If those are impracticable, we will look at wireless solutions using radios and cellular services.
- ❖ **Tooele Travel Time – Bluetooth System:** Our consultant, Narwhal, completed installing 19 blue tooth receivers around the I-80/Sr-201 freeway corridors in the west Salt Lake County, and in Tooele County. The data is processed by a private vendor, and then the travel time sample is delivered to UDOT and integrated into our Travel Time System. These devices help us fill holes in our system that has difficulty with power supply. Several of these units run on a solar/battery system.





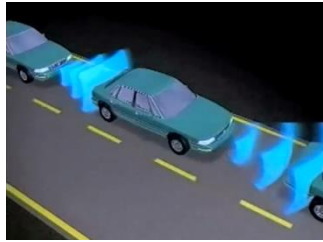
### Region 3

- ❖ **US-40 CCTV/Signal connections (12805) STRATA:** Installed connection electronics to eight signals in the basin area. Network connection complete. CCTV's connections pending.
- ❖ **US-189; State Park to Rock Cut passing Lanes (11415):** Project under construction. ATMS inspection expected in November.
- ❖ **Spanish Fork; SR-156; 300 South to M.P. 2 (9976):** Project complete. Moved to closeout.
- ❖ **Provo; SR-256; 800 East to Univ Ave BRT (10266):** ATMS design of micro fiber and two CCTV's ongoing. Project under construction.
- ❖ **Spanish Fork; Canyon Rd @ 2550 E Signal (10960):** Project under construction. ATMS inspection expected in November.
- ❖ **Provo; US-89 (300 S); 100 East to 700 East (10137):** Project under construction.
- ❖ **Utah Co. Signal Interconnect (13244):** Project under construction. Notified that fiber delivery is 40 weeks.
- ❖ **I-15 Fiber; Payson to Santaquin (14149):** Held project scoping meeting. Identified possibly connecting to CentraCom hub in Santaquin.
- ❖ **Pleasant Grove; US-89 @ 200/220 South (14683):** Project under construction.
- ❖ **Highland; SR-92 @ 6400 West Signal (14595):** Project complete.
- ❖ **American Fork; US-89 @ Main St./200 East (13061):** Project in design.
- ❖ **Payson; 1400 South State St (SR-198) Signal/CCTV (14573):** Comment resolution.
- ❖ **Highland; SR-129 @ 1100 North Signal/CCTV (14955):** Project under construction.
- ❖ **Saratoga Springs; SR-68 Saratoga Springs to Stillwater Parkway (10689):** Project in design. New fiber/conduit/signal connections.
- ❖ **Orem; SR-114 (Geneva) @ 800 South Signal/CCTV (14956):** Project in design.
- ❖ **Santaquin; US-6 @ 200 West Signal (14954):** Project in design. Wireless connection to US-6 @ 400 East.
- ❖ **Provo; US-89 @ 1860 South Signal/CCTV upgrade (14115):** Project under construction.
- ❖ **Orem; Lakeview to I-15 NB Ramp Signal (11882):** Project under construction.
- ❖ **Lehi; Main St @ US-89/State St Signal(s) (13668):** Project in design.



### Region 4

- ❖ **St. George:** This project is complete, except for some city and UDOT fiber coordination. Pinetop is in the process of integration.
- ❖ **Salina VMS and Fiber:** This project is completed.
- ❖ **Fiber upgrade for US-6, Helper and Price Signal Integration:** Hunt Electric will start working on this.
- ❖ **I-70 in Richfield:** In design.
- ❖ **Cedar City Fiber:** Under construction and is nearing completion.
- ❖ **Beaver Shed and Fiber HUB:** Under construction and is nearing completion.
- ❖ **Arches CCTV:** This has been completed and is in 30 day burn in.
- ❖ **Bryce Signal:** The contractor is looking into the splicing and construction details.



### ITS Standards and Specifications

- ❖ The final ATMS Standards and Specifications were presented to the UDOT Standards Committee on October 27, 2017. All were accepted without change.
- ❖ Presented a course at the UDOT Engineer's Conference that discussed the changes in the 2017 ATMS Standards. Comparisons were made to show the differences between the 2012 Edition and the upcoming 2017 Edition.
- ❖ Began to scope the upcoming ATMS Design Manual of Instruction.

### Procurement

- ❖ Andy Cousins of OMNI Outside Plant Specialists called the TOC to discuss the Microduct Conduit products. Mr. Cousin's firm was invited to the Engineer's Conference. OMNI had a booth at the conference.

## TMD Operation Highlights

Updated logo signs on the TOC were installed.





**"You shouldn't eat pumpkin pie near a jack-o'-lantern!"**



### Acronyms

<b>CCTV</b>	Closed Circuit Television	<b>DPS</b>	Department of Public Safety
<b>EIS</b>	Emergency Information System	<b>HAR</b>	Highway Advisory Radio
<b>I2TMS</b>	Integrated Interagency Traffic Management System		
<b>ITS</b>	Intelligent Transportation System	<b>LFOT</b>	Local Field Operations Test
<b>MIC</b>	Manager in Charge	<b>MOT</b>	Maintenance of Traffic
<b>RWIS</b>	Road-Weather Information System	<b>TAC</b>	Technical Advisory Committee
<b>TMD</b>	Traffic Management Division	<b>TMS</b>	Traffic Monitoring Station
<b>TOC</b>	Traffic Operations Center	<b>VMS</b>	Variable Message Sign

